



**Department of Energy**

Idaho Operations Office  
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Idaho Falls, Idaho 83401-1563

August 27, 2001

Mr. Wayne Pierre, Team Leader  
Environmental Cleanup Office  
U. S. Environmental Protection Agency  
Region 10  
1200 Sixth Avenue  
Seattle, WA 98101

Mr. Dean Nygard, Site Remediation Manager  
Idaho Department of Environmental Quality  
Community Services  
1410 N. Hilton  
Boise, ID 83706

SUBJECT: Path Forward for In Situ Vitrification Evaluation in the Operable Unit 7-13/14  
Remedial Investigation/Feasibility Study – (EM-ER-01-141)

Dear Messrs. Pierre and Mr. Nygard:

Pursuant to our discussions of August 1, 2001, in Seattle, we are advancing the concept initiated in that meeting that due to a large amount of commercial experience and test data available, in situ vitrification (ISV) technology can be reasonably assessed in the Operable Unit (OU) 7-13/14 feasibility study (FS) without performing treatability studies. The enclosed data summary provides a list of ISV experience and test data that will be assessed in the FS. As discussed in Seattle, this data developed to date under the OU 7-13/14 program and other available information from past ISV efforts provides decision makers sufficient information to evaluate the technology during the remedy selection process. The probable expulsion of radioactively contaminated molten material is not an acceptable event at the Subsurface Disposal Area, and has been a topic of concern. It is noted that future ISV testing may be performed during the OU 7-13/14 remedial design/remedial action if ISV is a remedial action selected in the OU 7-13/14 record of decision.

If you have questions regarding this correspondence, please call me at (208) 526-4392, or Kevin C. O'Neill at (208) 526-5455.

Sincerely,

*Kathleen E. Hain*

Kathleen E. Hain, Director  
Environmental Restoration Program

Enclosure

cc: R. Poeton, EPA  
D. Koch, IDHW

In Situ Vitrification Relevant Technology Performance Data Summary

Location	Facility	Approx. Date	Relevance to SDA Application
INEEL	WAG 7 Treatability Study	1999 – 2001	A Preliminary Safety Analysis was conducted for ISV application at the SDA. Explosives' testing also was conducted in support of safety analysis. 55-gallon drums of nitrate salt and organic mixtures were tested at elevated temperatures to determine adequate overburden necessary to contain event. Projected air emissions were also calculated in support of the planned field testing effort and safety analysis.
LANL	Laundry Waste Adsorption Beds	1999/2000	Planar melt technique demonstrated at a field scale for a contaminated soil site (including a cold field test as well as a hot test). The enhanced processing depth achieved by the planar melts (25+ feet) is partially relevant to the SDA application.
INEEL	TAN V-tanks	1998	Planar melt technique demonstrated at a field-scale for possible application to in situ tank remediation.
ORNL	Seepage Pit	1996	Full-scale melt of cesium contaminated soil. Resulting melt expulsion initiated development of techniques to mitigate such an event (i.e. overburden enhancement, planar melting).
INEEL	WRTF	1990	Field scale melts using top-down electrode feeding to process a waste matrix that simulates SDA waste forms. This data is fully relevant to the SDA application.
Other	Miscellaneous	1985 – 1999	General technology performance based on a history of approximately 100 large-scale melts. Detailed listing of large-scale melts can be provided upon request.